

Application No.: 09/970474

Case No.: 57120US002

REMARKS

Claims 1-38 are pending and stand rejected.

Claims 1-8, 10-23, 24-27, 29-36 and 38 stand rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,723,929 (Kent). Applicants disagree.

The claims rejected as being anticipated by Kent include all the independent claims, namely claims 1, 15, 21, 26, 29, 30, 33 and 38. Applicants submit that Kent does not disclose all the elements of any of these independent claims, and therefore does not anticipate.

Kent discloses a surface acoustic wave touch sensor that utilizes arrays of acoustic waves transmitted across the surface to detect touches. Kent acknowledges that surface acoustic wave touch sensors simultaneously experiencing two or more touches are subject ambiguities in positional determination. The ambiguity arises when trying to determine which of the multiple detected X coordinates matches with which of the multiple detected Y coordinates. Kent proposes resolving the ambiguity by timing and quantitative attenuation information (see Kent col. 43, lines 13-14). As for timing, Kent observes that if an (X1, Y1) coordinate touch has already been unambiguously established very recently before a double touch where the double touch coordinate possibilities are X1, X2, Y1 and Y2, it is highly likely that the second touch of the double touch has the coordinate (X2, Y2). As for quantitative attenuation, Kent observes that when double touches involve coordinate possibilities of X1, x2, Y1 and y2, where X1 and Y1 are strongly attenuated signals, while x2 and y2 are weakly attenuated signals, it is highly likely that the two touch coordinates are (X1, Y1) and (x2, y2). Kent also discloses the use of three or more sensor subsystems in conjunction with predicted time delays among them to resolve coordinate ambiguities for multiple simultaneous touch events.

In all, Kent's disclosure is specifically and exclusively focused on resolving coordinate ambiguities for a touch screen where the existence and number of multiple touches is readily known. The embodiments of Applicants' invention are applicable to many difference touch detection technologies, including those where the identification of multiple temporally overlapping touches can be problematic.

Each of Applicants' claims include features that are not disclosed by Kent. For example, at least independent claims 1, 30 and 33 include determining whether the signal magnitude exceeds a minimum threshold for a single touch input and whether the signal exceeds a

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maximum threshold for a single touch input. When the signal exceeds the minimum threshold, at least one touch exists. When the signal exceeds the maximum threshold, at least two touches exist. Kent does not disclose such use of signal thresholds. Rather, Kent discloses only that attenuation levels of known multiple touches may be matched to resolve positional ambiguities. Kent does not disclose, and would have no reason to consider, using a maximum threshold to identify multiple touch events.

Further, at least independent claims 15, 21, 30 and 38 recite using rates of change of signal magnitude and/or calculated touch position to determine whether a simultaneous multiple touch has occurred. Similarly, claims 26, 29 and 33 recite taking multiple signal samples over a time period shorter than an expected touch duration, associating a parameter with each of the signal samples, and distinguishing single touch events from multiple touch events based on comparing the associated parameters to predetermined thresholds, adapted thresholds, or each other. Looking at discrete multiple signal samples taken over a short period of time as recited in Applicants' claims is akin to looking at rates of change. Kent does not disclose using signal or positional rate of change information to identify multiple touch events. Rather, Kent discloses using timing, self-consistent delay times from multiple sensor subsystems, and attenuation magnitudes, as discussed previously. Nothing in Kent provides any appreciation for correlating rate of change information to multiple simultaneous touch identification.

As in claim 15 and various independent claims, Applicants' also recite using proximity of touch position to designated areas as an indicator that multiple touches have occurred, such designated areas including designated active touch areas and areas of particularly high probability of resulting from multiple touches. For example, when a touch position determination lies sufficiently outside of the nearest active touch area, a multiple touch event may be indicated. Kent does not disclose correlating proximity of calculated touch positions to designated areas as a way of identifying multiple touches or as a way to resolve ambiguities in multiple touch coordinates.

For at least these reasons, Kent does not disclose all the elements of any of Applicants' independent claims, and therefore Kent cannot be said to be anticipatory to any of Applicants' claims. Applicants request reconsideration and withdrawal of the rejection of claims 1-8, 10-23, 24-27, 29-36 and 38 as anticipated by Kent.

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Claim 38 stands rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,590,567 (Nagao). Applicants disagree.

Nagao discloses a coordinate input device that generates voltage signals when contacted, the voltage signals usable to determine the position of the contact as well as operation information assigned to the contact. The operation information corresponds to operations associated with two or more switches. For example, the operation information can be the operations normally associated with the left and right buttons of a mouse.

Claim 38 recites, "A method for distinguishing phantom touch positions from valid touch positions during a double touch event in a touch screen system comprising: independently measuring an X-coordinate position for each touch in the double touch; independently measuring a Y-coordinate position for each touch in the double touch; determining a rate of change of magnitude of a measured signal corresponding to each X-coordinate position and each Y-coordinate position; matching X-coordinate positions with Y-coordinate positions based on similar rates of change; and reporting the matched X, Y coordinates as the valid touch positions."

Nagao does not disclose distinguishing phantom touch positions from valid touch positions. Nagao does not disclose resolving double touch events (i.e., simultaneous touches). Nagao does not disclose independently measuring X-coordinate or Y-coordinate positions for each touch in a double touch. Nagao does not disclose determining a rate of change of magnitude of a measured signal corresponding to each X-coordinate position and each Y-coordinate position. Nagao does not disclose matching X-coordinate positions with Y-coordinate positions based on similar rates of change. Applicants have been unable to discern any remote appreciation for these features from reading Nagao, and have found the passage indicated by the Examiner to be completely devoid of relevant concepts.

For at least these reasons, Nagao cannot be said to anticipate claim 38. Applicants therefore request reconsideration and withdrawal of the rejection of claims 38 as anticipated by Nagao.

Claim 9 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kent in view of U.S. Patent No. 6,738,049 (Kiser). Applicants disagree.

Kiser discloses a touchscreen input device that allows user customization of the screen layout. Kiser does not disclose using a minimum threshold for a single touch and a maximum

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threshold for a single touch, nor does Kiser disclose assigning different values for the minimum and maximum single touch thresholds to different users. In addition, Kiser adds nothing that would cure the deficiencies of Kent as discussed previously. For these reasons, and assuming for the sake of argument that a proper combination could be made, any combination of Kiser with Kent fails to disclose all the elements of claim 9. Applicants therefore submit that a prima facie case of obviousness has not be made, and request reconsideration and withdrawal of the rejection of claim 9 over Kent in view of Kiser.

Claims 23, 28 and 37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kent in view of U.S. Patent No. 6,819,313 (Abdelhadi). Applicants disagree.

Abdelhadi discloses providing a visual indication when a cursor control device is used to bring a cursor within a designated region on the screen, for example near an icon. Abdelhadi does not disclose touch screens, nor does Abdelhadi disclose making only certain areas active to inputs. Abdelhadi is instead concerned with providing a visual indication to a user that the cursor is within a designated area. Abdelhadi adds nothing that would cure the deficiencies of Kent as discussed previously. For these reasons, and assuming for the sake of argument that a proper combination could be made, any combination of Abdelhadi with Kent fails to disclose all the elements of claims 23, 28 or 37. Applicants therefore submit that a prima facie case of obviousness has not be made, and request reconsideration and withdrawal of the rejection of these claims over Kent in view of Abdelhadi.

Applicants submit that the present application is in condition for allowance and earnestly solicit early indication of the same.

Respectfully submitted,

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Date

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